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Letter to the Editor

Magnetic Resonance Imaging of the Brain in Williams-Beuren Syndrome

To the Editor:

Developmental delay and growth retardation are common signs in Williams-Beuren syndrome (WBS) [Gosch and Pankau, 1996; Pankau et al., 1992]. Microcephaly is seen in about one third of WBS patients [Pankau et al., 1994]. Magnetic resonance imaging (MRI) of the brain was done in 8 adolescent and adult WBS patients by Jernigan and Mellugi [1990]. The authors concluded that there was an unusual pattern of brain structure in WBS subjects.

In order to obtain detailed information on brain structure in WBS, we systematically evaluated 30 patients (10 females and 20 males between age 2 months–25 years; mean, 10 ± 7 years) in a prospective MRI study.

MRI was performed on a 1.0 Tesla (Magnetom Impact, Siemens, Erlangen, Germany) and a 1.5 Tesla (Gyroscan S15, Philips, Eindhoven, Netherlands, and Magnetom Vision, Siemens, Erlangen, Germany) whole-body MR scanner using a head coil.

All patients were examined by T1-, T2-, and proton-density (pd)-weighted sequences at least with two or more imaging planes in transverse, coronal, and sagittal orientations, with a slice thickness of 3–6 mm. T2- and pd-weighted images (double-echo technique) were obtained by using a spin-echo (SE) sequence with a repetition time (TR) of 2,500–3,500 msec and echo time (TE) of 20 and 100 msec (Gyroscan S15), or a turbo spin echo (TSE) sequence with TR = 5,000 msec and TE = 22 and 90 msec (Magnetom Impact and Magnetom Vision). T1-weighted images were obtained with a spin-echo sequence, with TR = 450–664 msec, TE = 9–20 msec, or additionally with an inversion-recovery (IR) sequence with TR = 1,694 msec, TE = 20 msec, and an inversion time (TI) of 428 msec.

MR images were evaluated for the presence of cerebral anomaly, dysplasia, and neoplastic, vascular, or inflammatory alterations, and specifically with regard to myelogenesis of the cerebral medulla and the cortical and medullary ratio.

In 26 cases, MRI of the brain was normal. Four children had nonspecific changes on MRI. One 5-year-old boy showed an arachnoid cyst in the cerebellopontine angle on both sides. A 5-year-old girl had a punctiform white-matter lesion in the left parietal lobe. In one case of a 4-year-old girl, hypoplasia of the corpus callosum and the pons was seen. A 16-year-old girl showed a venous angioma in the left temporal lobe.

Patients with WBS showed no characteristic changes of the brain. The frequency of pathological findings in WBS patients was not different from that in the normal population.

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